

ABSTRACT OF THE INVENTION

Improved methods for generating a -C-C- bond by cross-coupling of a transferable group with an acceptor group. The transferable group is a substituent of an organosilicon nucleophile and the acceptor group is provided as an organic electrophile. The reaction is catalyzed by a Group 10 transition metal complex (e.g., Ni, Pt or Pd), particularly by a palladium complex. Certain methods of this invention use improved organosilicon nucleophiles which are readily prepared, can give high product yields and exhibit high stereoselectivity. Methods of this invention employ activating ions such as halides, hydroxide, hydride and silyloxides. In specific embodiments, organosilicon nucleophilic reagents of this invention include siloxanes, particularly cyclic siloxanes. The combination of the cross-coupling reactions of this invention with ring-closing metathesis, hydrosilylation and intramolecular hydrosilylation reactions provide useful synthetic strategies that have wide application.